

Project Summary and Justification

Department	Public Utilities
Division	Water Supply & Distribution

The 2004-2010 Capital Improvement Program for the Lincoln Water System has been prepared and updated based upon information and recommendations contained in: (a) 2002 Comprehensive Plan and (b) 2002 Water Master Plan. These reports consisted of comprehensive reviews of the City of Lincoln's water works facilities and analysis of system capabilities based upon projected future demands on the system. The 2002 Water Master Plan Report was coordinated with the Planning Department and utilized 2000 census population and land use data formulated in the new Lincoln-Lancaster Comprehensive Plan. The Capital Improvement Program also reflects the effective implementation of the current year's approved Water Construction Fund Budget (2003-2004).

Financial limitations and projections are an important practical consideration in the 2004-2010 Capital Improvement Program. Major capital improvements, which provide facilities for future growth, are financed primarily by water revenue bonds and the balance by recently implemented impact fees and water revenues. Future users pay for the debt service of water revenue bonds. This program places emphasis on Capital Improvements within Lincoln, i.e., pumping stations, reservoirs, transmission and distribution mains, and in the later years of the CIP, completion of the transmission main to Lincoln, and water supply and treatment plant expansion. Lincoln Water System's physical facilities can generally be divided into four functions. These are: supply, treatment, transmission, and distribution. The distribution area can be further subdivided into (a) pumping stations, reservoirs, and other structures, and (b) water distribution mains. As in previous years, the 2004-2010 Capital Improvement Program has been prepared and organized utilizing the above-mentioned categories.

Primary water supply for the City of Lincoln originates from northeasterly of Lincoln, Nebraska. This primary source is supplemented during peak summer demand periods by a group of wells located within the corporate limits of the City. Water from the treatment facilities is currently treated by the "aeration filtration" and/or "ozonation filtration" processes which removes the iron and manganese and is then transmitted to Lincoln. The Water Distribution System within the City is divided into six pressure zones - Belmont Pressure Zone, Low Duty Pressure Zone, High Duty Pressure Zone, Southeast Pressure Zone, Northwest Booster System, and Cheney Booster System. Pressure zones are interconnected through a series of storage reservoirs and pumping stations. Water is then pumped through distribution mains into the customer's tap.

The proposed 2004-2010 Capital Improvement Program is highlighted by continued efforts to improve water supply, treatment, transmission, and distribution facilities. It is imperative that capital facilities be planned and implemented in an orderly manner to ensure that customers within the City of Lincoln are provided with an adequate quantity of quality water, meeting local, State and Federal safe drinking water standards. Water facilities were configured to accommodate room for addition of more complex treatment facilities to meet future water treatment needs. Consideration was given to degradation of water quality due to potential contamination from sources such as Mead Ordinance plant and agricultural runoff. The 2004-2010 six-year CIP provides for comprehensive update of the Facilities Water Master Plan; water supply expansion and enhancements; treatment plant expansion; an upgrade of control system; construction of additional reservoirs, transmission and distribution mains throughout the City of Lincoln; and additions of pumping stations throughout the City. Additional facilities will be constructed

Project Summary and Justification (cont.)

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beyond this plan. It is the Lincoln Water System's goal to accomplish this at the least cost to the rate payers.

Major construction expenditures are programmed in this Capital Improvement Program. These costs were identified in the 2002 Water Master Plan Report. A phasing plan and priorities of construction are developed in the 2002 Water Master Plan Report. Additional construction expenditures associated with projects such as these will continue to be necessary as the community continues to grow.

The 2002 Water Master Plan Reports provided: (a) an updated Distribution System Hydraulic Analysis; and (b) a comprehensive water supply, treatment, transmission and distribution system Master Plan Report. The Master Plan also identified water distribution system needs and evaluated the most energy efficient method of operation of the water treatment facilities and the pumping stations and reservoirs throughout the City of Lincoln. Improvement recommendations from the 2002 Water Master Plan reports include:

- (a) The addition of a Pioneers Pumping Station which provides an additional pumping station in the Belmont System.
- (b) 2 MG storage reservoir in the Cheney Booster System.
- (c) Ozone contact basin modifications.
- (d) Major water transmission mains to the City and between pressure systems. These projects provide the ability to increase the reliability of the pressure systems throughout the City.
- (e) Expansion of water supply and treatment systems.
- (f) Additional and replacement pumps to meet current and future growth needs of the City.
- (g) Various water distribution feeder mains to accommodate future land development and improve operations and reliability of the existing water distribution feeder main grid system.
- (h) General System Improvements include completing work on the Control System and SCADA system to automate the operation of the wellfield, treatment plants, pumping stations, and Water Distribution System and to enhance security for the entire water system. The 2002 Water Master Plan evaluated the necessary improvements needed in supply, treatment, transmission, and distribution systems required to meet the growth of the city.

The proposed 2004-2010 Capital Improvement Program continues to provide for distribution system capacity requirements for residential water districts and new subdivisions to allow financing for water mains which are to be constructed greater in size than those normally required to provide fire protection in commercial and residential areas. Also, the distribution system capacity account allows the City to share in the cost of water mains constructed in older developed areas of the City where construction costs are naturally higher. In those areas, the maximum assessment rate (currently set at \$40.00 per front foot) is normally applied by the Board of Equalization. A water distribution main replacement program, which was recommended to be expanded, will continue to allow for replacement of obsolete, deteriorated mains within the system and minor reconstruction of existing facilities that have served their useful life.

Project Summary and Justification (cont.)

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Preliminary design engineering and support is provided for preliminary investigative design monies to handle emergencies and miscellaneous small projects.

The proposed 2004-2010 Capital Improvements Program provides for subsidies to Street Construction for street construction projects that necessitate the lowering or reconstruction of water mains due to change in street grades.

Remaining projects in the proposed 2004-2010 Capital Improvement Program are under the general category of Water Distribution Mains. These mains are basically recommendations from the Water Master Plan Report and are programmed to both improve operation and reliability of the existing water distribution feeder main grid system and accommodate future land development in accordance with the land use phasing of the Comprehensive Plan plus the annual review of that plan.

Several projects from previous CIPs were initiated or completed during the 2003-2004 Fiscal Year. They are: (1) Continued design and construction of water transmission mains; (2) An additional 10 MG reservoir; (3) New Pioneers pumping station for the Belmont System and a Northwest booster pumping station; and (4) Several major distribution mains throughout the City.

Expenditures in the early years of the plan relate to the construction of: (a) Transmission main to the City; (b) Additional water transmission and distribution mains to move water from one pressure zone to another to accommodate City growth to the south, west, southwest, and northwest areas of Lincoln; (c) Additional replacement pumps and pumping station modifications at Northeast Pump Station.

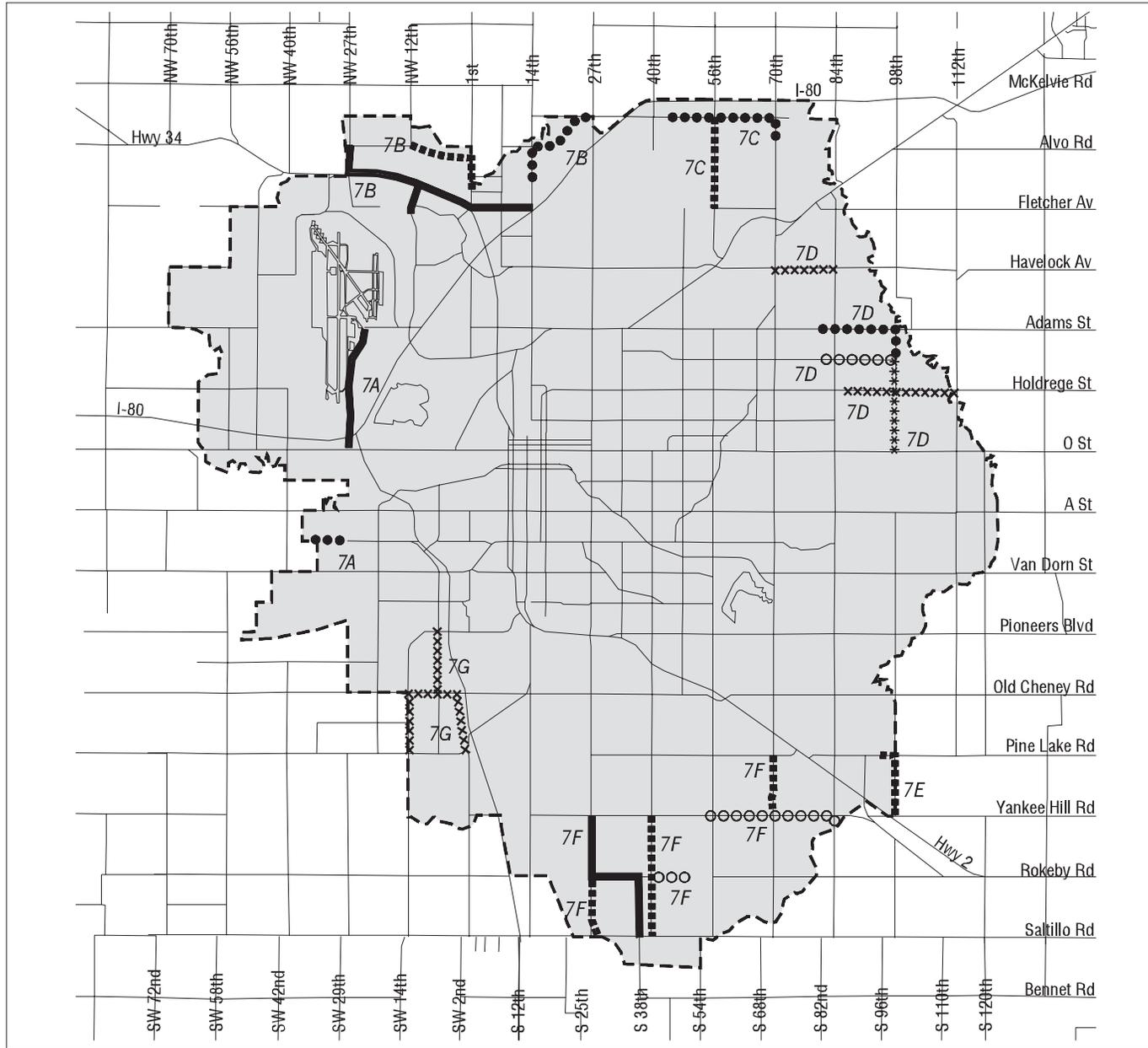
Many additional projects are shown in the Water Master Plan, but not shown in this proposed 2004-2010 Capital Improvement Program, since they are necessary for later phases of development in the Comprehensive Plan.

The City Council, by the adoption of the Annual Budget, hereby authorizes the acquisition of all necessary rights-of-way, easements, or other interests in land, by purchase if possible, by condemnation if necessary, for those projects included within the first year of said Capital Improvements Program.

In summary, the 2004-2010 Capital Improvement Program for the Lincoln Water System has been prepared based upon the need to eliminate or reduce existing deficiencies and the need to implement projected requirements of capital facilities in order to ensure that the citizens of the City of Lincoln are supplied with an adequate quantity of high quality water. It is important that these capital improvements be planned judiciously and implemented on a timely basis to provide assurances of meeting these objectives.

Lincoln CIP 2004 - 2010

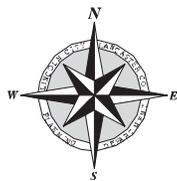
Public Utilities Lincoln Water System



**L
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Lincoln's Future Service Limit Shown as Gray

Map prepared by
City - Co. Planning Dept
GIS Section



M I L E S



Symbol for Fiscal Years

- 2004-2005
- 2005-2006
- 2006-2007
- 2007-2008
- xxxxxxxx 2008-2009
- ***** 2009-2010

(Capital improvements often take many years to complete. The year shown on this map reflects the start up year or year of greatest activity. Consult the detailed project lists for further information on project scheduling and likely completion.)

List of Projects *Department: Public Utilities / Water Supply & Distribution*

Project Number	Project Title
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- | | |
|----|--|
| 1* | General System Improvements |
| 2* | Water Supply - Wells, Treatment, and Transmission |
| 3* | Storage Reservoirs |
| 4* | Pump Stations |
| 5* | Major Mains |
| 6* | Selected Replacement of Mains |
| 7 | Distribution Mains |
| 8* | Distribution Capacity/Subsidies to Street Construction |

*Indicates project is NOT shown on the map.

2004 - 2010 CAPITAL IMPROVEMENT PROGRAM

DIVISION: WATER SYSTEM

(1)	(2)	(3)	3% Inflation per year (4)															
PROJ. NO.	PROJECT TITLE	PROJ. PRIO.	PROGRAMMED EXPENDITURES & FUNDING SOURCES (FS) (000's)															
			2004-2005	FS	2005-2006	FS	2006-2007	FS	2007-2008	FS	2008-2009	FS	2009-2010	FS				
1	General System Improvements																	
	A. Security Upgrade - 701222	A	1,050.0	RB	1,000.0	RB												
	B. Facilities Master Plan	A					440.0	RB										
	C. Data Link to Ashland - 700311		200.0	UR														
*	D. Preliminary Design & Engineering Support - 506005	A	30.0	UR	30.0	UR	30.0	UR	50.0	UR	50.0	UR	50.0	UR				
*	E. UNL Master Plan Study	A	30.0	UR														
	TOTAL PROJECT 1		1,310.0		1,030.0		470.0		50.0		50.0		50.0		50.0			
2	Water Supply - Wells, Treatment & Transmission																	
	A. Well Replacement - Ashland - #701024	A	730.0	RB			1,200.0	RB										
	B. Control System Upgrade - Ashland	A									930.0	RB						
	C. Additional Supply - Ashland - 506010	A	520.0	RB	300.0	RB	300.0	RB	300.0	RB	300.0	RB	300.0	RB	300.0	UR		
*	D. Infrastructure Rehab	A	30.0	UR	30.0	UR	50.0	UR	50.0	UR	50.0	UR	50.0	UR	50.0	UR		
	E. Treatment Plant/Wellfield Expansion (25 MGD) **	A							2,280.0	RB	7,460.0	RB	680.0	IF	7,730.0	RB	730.0	IF
	F. Island Collector Well **	A							840.0	RB	4,150.0	RB			4,220.0	RB		
	TOTAL PROJECT 2		1,280.0		330.0		1,550.0		3,470.0		13,570.0		13,030.0		13,030.0			
3	Storage Reservoirs																	
	A. Floating Storage Reservoir 2 MG - C B S - 98th & N-2 - 701825	A															500.0	UR
	TOTAL PROJECT 3		0.0		0.0		0.0		0.0		0.0		0.0		500.0			
4	Pump Stations																	
	A. Replace/Add Pumps - N E P S - 701221	A	170.0	RB														
			330.0	IF														
	B. Trim Impellers at Belmont P S	A	210.0	UR														
	TOTAL PROJECT 4		710.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0	

FORM B

(5)	(6)	(7)		(8)	(9)	(10)	(11)						(1)
TOTAL FOR SIX YEARS (000's)	COST BEYOND 2009-2010 (000's)	PRIOR APPROPRIATIONS (000's)		TOTAL CAP COSTS (000's)	COMP PLAN CONFORM	STATUS OF PLANS	COST BREAKDOWNS FOR SIX-YEAR EXPENDITURES (000's)						PROJ. NO.
		YEAR	FS	(5)+(6)+(7)			PRELIM PLANS	FINAL PLANS	LAND ACQUISITION	CONST	EQUIP / FURNISH	OTHER (EXPLAIN)	
2,050.0	NA	500.0		2,550.0	GCP	4		255.0		2,295.0			1
440.0	Ongoing	NA		440.0	GCP	0	440.0						
200.0	None	NA		200.0	GCP	4				200.0			
240.0	Ongoing	N/A		240.0	GCP	0	240.0						
30.0	Ongoing	N/A		30.0	GCP	0							*
2,960.0													2
1,930.0	Ongoing	N/A		1,930.0	GCP	2		193.0		1,737.0			
930.0	Ongoing	N/A		930.0	GCP	1		186.0		744.0			
2,020.0	Ongoing	N/A		2,020.0	GCP	1		202.0		1,818.0			
260.0	Ongoing	N/A		260.0	GCP	1		26.0		234.0			*
18,880.0	None	None		18,880.0	GCP	2		1,888.0		16,992.0			
9,210.0	None	None		9,210.0	GCP	2		921.0		8,289.0			
33,230.0													
500.0	5,130.0	None		5,630.0	GCP	2		570.0	100.0	5,000.0			3
500.0													
500.0	None	100.0	02-03	2,000.0	GCP	4				500.0			4
		1,400.0	03-04										
210.0	None	None		210.0	GCP	2				210.0			
710.0													

(1)	(2)	(3)	3% Inflation per year (4)															
PROJ. NO.	PROJECT TITLE	PROJ. PRIO.	PROGRAMMED EXPENDITURES & FUNDING SOURCES (FS) (000's)															
			2004-2005	FS	2005-2006	FS	2006-2007	FS	2007-2008	FS	2008-2009	FS	2009-2010	FS				
5	Major Mains																	
	A. Transmission Main to Lincoln - 506212	A			1,640.0	RB	410.0	IF	8,280.0	RB	550.0	IF	8,390.0	RB	730.0	IF		
	TOTAL PROJECT 5		0.0		2,050.0				8,830.0				9,120.0				0.0	0.0
6	Selected Replacement of Mains such as - #700210: Projects such as:	A	2,500.0	RB	2,600.0	RB			2,700.0	RB			2,750.0	RB			2,800.0	RB
*	40th St - Sheridan to High																	
*	48th St - Old Cheney to north of N-2																	
*	48th St - Calvert to Pioneers																	
*	South St - 17th to 27th																	
*	Vine St, 25th to 27th																	
*	Antelope Valley - "N", "O", "P", & "Q"																	
	TOTAL PROJECT 6		2,500.0		2,600.0				2,700.0				2,750.0				2,800.0	2,900.0
7	Distribution Mains - List by Impact Fee Benefit Area **																	
	A. Mains in Area # 1 - 703100	A							250.0	RB								
	South St, SW 27th to SW 33rd																	
*	NW 27th, "Q" to NW 24th & Saunders		720.0	RB	50.0	IF												
	B. Mains in Area # 2 - 703200	A	1,666.0	RB	224.0	DC	50.0	IF										
	14th & Alvo to N 27th & Arbor								2,250.0	RB	159.0	DC	150.0	IF				
	1st & Arbor to NW 12th & Alvo to US 34				780.0	RB											600.0	RB
																	120.0	IF
	C. Mains in Area # 3 - 703300	A	70.0	UR	780.0	RB			580.0	RB	30.0	IF						
	Arbor, 40th to 70th to 1/4 mile south																	
	56th, Fletcher to Arbor		120.0	UR	1,010.0	RB			190.0	RB								
					70.0	IF												

FORM B

(5)	(6)	(7)		(8)	(9)	(10)	(11)						(1)
TOTAL FOR SIX YEARS (000's)	COST BEYOND 2009-2010 (000's)	PRIOR APPROPRIATIONS		TOTAL CAP COSTS (000's) (5)+(6)+(7)	COMP PLAN CONFORM	STATUS OF PLANS	COST BREAKDOWNS FOR SIX-YEAR EXPENDITURES (000's)						PROJ. NO.
		YEAR	FS				PRELIM PLANS	FINAL PLANS	LAND ACQUISITION	CONST	EQUIP / FURNISH	OTHER (EXPLAIN)	
20,000.0	None	None		20,000.0	GCP	2		2,000.0			18,000.0		5
20,000.0													
16,250.0	Ongoing	N/A		16,250.0	GCP	1		1,625.0			14,625.0		6
													*
													*
													*
													*
													*
16,250.0													7
250.0	None	None		250.0	GCP	2		25.0			225.0		
770.0	None	None		770.0	GCP	2		77.0			693.0		*
1,940.0	None	None		1,940.0	GCP	2		194.0			1,746.0		
2,559.0	None	None		2,559.0	GCP	2		255.9			2,303.1		
1,500.0	None	None		1,500.0	GCP	2		150.0			1,350.0		
1,460.0	None	None		1,460.0	GCP	2		146.0			1,314.0		
1,390.0	None	None		1,390.0	GCP	2		139.0			1,251.0		

FORM B

(5)	(6)	(7)		(8)	(9)	(10)	(11)						(1)	
							COST BREAKDOWNS FOR SIX-YEAR EXPENDITURES (000's)							
							PRELIM PLANS	FINAL PLANS	LAND ACQUISITION	CONST	EQUIP / FURNISH	OTHER (EXPLAIN)		PROJ. NO.
TOTAL FOR SIX YEARS (000's)	COST BEYOND 2009-2010 (000's)	PRIOR APPROPRIATIONS (000's)	YEAR	FS	TOTAL CAP COSTS (000's) (5)+(6)+(7)	COMP PLAN CONFORM	STATUS OF PLANS							
1,220.0	None	None			1,220.0	GCP	2		122.0		1,098.0			7 Cont.
810.0	None	None			810.0	GCP	2		81.0		729.0			
1,430.0	None	None			1,430.0	GCP	2		143.0		1,287.0			
1,100.0	None	None			1,100.0	GCP	2		110.0		990.0			*
1,220.0	None	None			1,220.0	GCP	2		122.0		1,098.0			
2,840.0	None	None			2,840.0	GCP	2		284.0		2,556.0			
1,480.0	None	None			1,480.0	GCP	2		148.0		1,332.0			
900.0	None	None			900.0	GCP	2		90.0		810.0			
330.0	None	None			330.0	GCP	2		33.0		297.0			
2,920.0	None	None			2,920.0	GCP	2		292.0		2,628.0			
630.0	None	None			630.0	GCP	2		63.0		567.0			
1,340.0	None	None			1,340.0	GCP	2		134.0		1,206.0			
670.0	None	None			670.0	GCP	2		67.0		603.0			
670.0	None	None			670.0	GCP	2		67.0		603.0			
27,429.0														
3,360.0	Ongoing	N/A			3,360.0	GCP	0		336.0		3,024.0			8
4,500.0	Ongoing	N/A			4,500.0	GCP	0		450.0		4,050.0			*
7,860.0														
444.0														
92,351.0														
11,144.0														
5,000.0														
=====														
108,939.0														

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